

REMARKS/ARGUMENTS

Claim Status – Request for Reconsideration

Reconsideration of this application is requested. The claims presented for reconsideration are claims 1-14, 16-21, 23-24, and 26-46.

Independent claims 1 and 21 have been amended to incorporate the elements of now canceled claims 15 and 22, respectively. Also, claim 25 has been canceled. This amendment adds no new matter.

Claim Rejections – 35 U.S.C. § 112

Claim 1 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the phrase “or the like” was considered indefinite. That phrase having been removed by this amendment, the rejection is rendered moot. Favorable reconsideration is, therefore, requested.

Claim Rejections – 35 U.S.C. § 102

Claims 1, 8-11, 15-17, 20-31, 38-40, and 44 were rejected under 35 U.S.C. § 102(b) as being anticipated by Jorgenson, U.S. Patent No. 4,509,326. This rejection is traversed and reconsideration is requested.

This invention is directed to processes and apparati for recovering heat from a high temperature effluent stream from a catalyst regenerator. The apparati can include the appropriate structure that enables the claimed process steps. The processes can involve passing the effluent stream of a catalyst regenerator through a heat exchanger associated with a steam generator fed with boiler feed water to produce high pressure steam and to partially cool the effluent stream. The partially cooled effluent stream can be passed through a heat exchanger associated with a high pressure boiler feed water preheater to provide preheated boiler feed water and to further cool the effluent stream, and the preheated boiler feed water can be passed to the steam generator. The preheated boiler feed water and the high pressure steam from the steam generator can be mixed in a steam drum, and liquid boiler feed water can be passed from the steam drum to the steam generator.

Jorgenson is directed to a process for extracting energy and removing solid particles from hot, dust-laden gas. Energy is extracted from hot dust-laden gases by a process in which the hot gases, before being cooled or purified, are used to generate steam in a boiler. The solid particles are then removed from the gases which are then supplied to a turbine.

Jorgenson differs from the claimed invention in that Jorgenson does not disclose a process or apparatus in which the preheated boiler feed water and the high pressure steam from the steam generator are mixed in a steam drum, nor in which liquid boiler feed water is passed from the steam drum to the steam generator. As noted at column 3, lines 10-20, Jorgenson sends water through a heater 7, and then into a reservoir 8. Wet vapor is sent to a superheater 10, and dry steam at high pressure emerges at line 11. Thus, Jorgenson forms high pressure steam, which exits the system and does not mix with any liquid water, as in Applicants' process. Therefore, Jorgenson does not disclose or suggest Applicants' claimed invention.

Claim Rejections – 35 U.S.C. § 103(a)

Claims 2, 3, 32, and 33 have been rejected under 35 U.S.C. § 103(a) as being obvious over Woebecke, U.S. Patent No. 3,910,768. Claims 4, 12-14, 25, 26, 34, 45, and 46 have been rejected under 35 U.S.C. § 103(a) as being obvious over Jorgensen, U.S. Patent No. 4,509,326. Claims 5-7, 18, 19, 35-37, and 41-43 were rejected under 35 U.S.C. § 103(a) as being obvious over Haddad, U.S. Patent No. 5,043,517. These rejections are traversed and reconsideration is requested.

Woebecke is directed to a high-pressure furnace for cracking hydrocarbons to produce olefin. Flame burners are used to produce combustion gases to circulate through radiant and convection sections in a furnace under pressure to crack hydrocarbons. Flue gas from the furnace serves to produce high-pressure steam, provide coolant to quench cracked gas, preheat the hydrocarbon-steam feed, and aid in driving a turbine-compressor assembly.

Haddad discloses a process for the continuous conversion of light olefin gas feed containing ethene, propene, and butene to produce heavier hydrocarbons. The heavier hydrocarbons are produced by contacting the light olefin feed in a fluidized bed reaction zone with a medium pore molecular sieve zeolite catalyst under oligomerization conditions to convert the light olefin feed to the heavier hydrocarbons. The catalytic reaction causes the conversion of

the light olefins to heavier hydrocarbons, the deposition of coke by-product on the catalyst, and the absorption of hydrocarbon product on the catalyst. The deposited coke causes the partial deactivation of the catalyst. A portion of the partially deactivated catalyst containing deposited coke and absorbed hydrocarbon product is transferred to a catalyst regeneration zone in which the catalyst is contacted with an oxygen containing gas to effect combustion of the coke and removal of the coke from the catalyst and regeneration of the catalyst.

Both Woebecke and Haddad differ from the claimed invention in that neither reference discloses a process or apparatus in which heat can be recovered from a high temperature effluent stream from a catalyst regenerator. In contrast, Woebecke discloses recovering heat from a high pressure furnace, which has little, if anything, to do with a regenerator. Haddad does not describe any recovery of heat from a regenerator effluent stream. Instead, heat recovery from Haddad is from the reactor and the catalyst regeneration bed, not the regenerator effluent stream. Therefore, neither Woebecke nor Haddad suggests a process or apparatus for recovering heat from a regenerator.

Woebecke and Haddad further differ from the claimed invention in that neither discloses a process or apparatus in which the preheated boiler feed water and the high pressure steam from the steam generator are mixed in a steam drum, nor in which liquid boiler feed water is passed from the steam drum to the steam generator. Thus, for the noted reasons, neither Woebecke nor Haddad, alone or in combination, discloses nor suggests Applicants' claimed invention.

Jorgenson has been discussed in detail above. For the reasons noted, Jorgensen also fails to suggest Applicants' claimed invention.

CONCLUSIONS

Having demonstrated that the cited references fail to disclose or suggest the invention as claimed, and all other formal issues having now been fully addressed, this application is believed to be in condition for allowance. Accordingly, Applicants request early and favorable reconsideration in the form of a Notice of Allowance.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated, since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response. Please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1712 (Docket #: 2004B023US).

Respectfully submitted,

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